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ABSTRACT

The Department of Health and Human Services, working with other governmental agencies, professional groups, and individuals, has identified general areas of concern for the nation's health. This report explains how physical activity and fitness have been prominent aspects of Healthy People 2010 (HP2010), the national health promotion and disease prevention effort. The two broad goals of HP2010 are to increase the years and quality of healthy life and eliminate health disparities. Of the 13 HP2000 physical activity and fitness objectives, only the worksite fitness programs goal has been met, though 4 objectives show solid gains, indicating that the message about increased physical activity is reaching some segments of the population. Physical activity is listed in HP2010's top 10 health indicators. It also has an effect on other indicators, and it can provide an attractive alternative to other indicators. HP2010 objectives offer opportunities to ensure that physical activity and fitness become part of regular healthy behavioral patterns. HP2010 objectives focus on: physical activity in adults; muscular strength/endurance and flexibility; physical activity in children and adolescents; and access. This report details each objective. (Contains 42 references.) (SM)

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# Healthy People 2010: Physical Activity and Fitness. President's Council on Physical Fitness and Sports Research Digest. Series 3, No. 13

Christine G. Spain
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President's Council on Physical Fitness and Sports

# Research Digest

Series 3, No. 13 March 2001

## Healthy People 2010: Physical Activity and Fitness

### Physical Activity and Fitness

Physical activity and fitness have been prominent aspects of this national health promotion and disease prevention endeavor since its inception. *This President's Council on Physical Fitness and Sports Research Digest* presents the (HP 2010) Physical Activity and Fitness Focus Area Objectives. Most of the text is quoted directly from HP2010. The current status and goals for all of the objectives are summarized in a series of tables and figures. The final editions of *Healthy People 2010* and *Understanding and Improving Health* were released in November, 2000, and are available on the Web at www.health.gov/healthypeople.

### Introduction to Healthy People 2010

With the turn of the century and the start of a new millennium in January, 2000, the Department of Health and Human Services (DHHS) released *Healthy People 2010*. These national public health focus areas and objectives aim to improve the health of everyone in the United States over the next 10 years. Launched by Health and Human Services Secretary, Donna E. Shalala, and Surgeon General, David Satcher, *Healthy People 2010* outlines two broad goals: increase the years and quality of healthy life and eliminate health disparities. To help meet these goals, 467 objectives have been identified in 28 focus areas.

### Background

*Healthy People 2010* succeeds: 1.) the 1979 report *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* and the 1990 health objectives published in *Promoting Health/Preventing Disease: Objectives for the Nation* with 226 targeted health objectives in 15 priority areas; and, 2.) *Healthy People 2000*, with 319 objectives in 22 priority areas. The President's Council on Physical Fitness and Sports served as the lead agency for both the 1990 and 2000 Physical Activity and Fitness Objectives for the Nation; the Centers for Disease Control and Prevention (CDC) was the science advisor.

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### Development of Healthy People 2010

The focus areas and objectives of HP2010 (see Table 1) reflect the ideas and expertise of a diverse range of individuals and organizations concerned about the nation's health. The Healthy People Consortium-an alliance of more than 350

*continued on page 2*

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national organizations and 250 state public health, mental health, substance abuse, and environmental agencies-was an active participant in the comment and development phase of this national endeavor.

**Table 1. HP 2010 Focus Areas**

1. Access to Quality Health Services
2. Arthritis, Osteoporosis, and Chronic Back Conditions
3. Cancer
4. Chronic Kidney Disease
5. Diabetes
6. Disability and Secondary Conditions
7. Educational and Community-Based Programs
8. Environmental Health
9. Family Planning
10. Food Safety
11. Health Communication
12. Heart Disease and Stroke
13. HIV
14. Immunization and Infectious Diseases
15. Injury and Violence Prevention
16. Maternal, Infant, and Child Health
17. Medical Product Safety
18. Mental Health and Mental Illness
19. Nutrition and Overweight
20. Occupational Safety and Health
21. Oral Health
22. Physical Fitness and Activity
23. Public Health Infrastructure
24. Respiratory Diseases
25. Sexually Transmitted Diseases
26. Substance Abuse
27. Tobacco Use
28. Vision and Hearing

Addressing the challenge of improving the health and welfare of all Americans is a shared responsibility that requires the active participation and leadership of all levels of government-federal, state, and local-policymakers, health care providers, professionals, business executives, educators, community leaders, and individuals.

In the focus area of physical activity and fitness for HP 2010, the PCPFS and CDC, share the co-lead responsibility of monitoring our progress in attaining this decade's goals. However, it is only through public/private partnerships, as well as individual involvement that true improvement will be shown. The biggest challenges lie ahead of us.

## New for 2010

Of special distinction and importance in HP2010 are the new set of **Ten Leading Health Indicators** (see Table 2), illuminating the individual behaviors, physical and social environmental factors, and important health system issues that greatly affect the health of individuals and communities. In addition to being listed in the top ten health indicators, physical activity also has an effect on other indicators (e.g., obesity, mental health), and it can provide an attractive alternative to other indicators (e.g., tobacco, substance abuse, injury and violence).

**Table 2. HP 2010 Ten Leading Health Indicators**

1. Physical Activity
2. Overweight and Obesity
3. Tobacco
4. Substance Abuse
5. Responsible Sexual Behavior
6. Mental Health
7. Injury and Violence
8. Environmental Quality
9. Immunization
10. Access to Health Care

## Focus Area 22: Physical Activity and Fitness

**Goal: Improve health, fitness, and quality of life through daily physical activity.**

## Overview

The 1990s brought a historic new perspective to exercise, fitness, and physical activity by shifting the focus from intensive vigorous exercise to a broader range of health-enhancing physical activities. Research has demonstrated that virtually all individuals will benefit from regular physical activity.[1] A Surgeon General's report on physical activity and health concluded that moderate physical activity can reduce substantially the risk of developing or dying from heart disease, diabetes, colon cancer, and high blood pressure.[1] Physical activity also may protect against lower back pain and some forms of cancer (for example, breast cancer), but the evidence is not yet conclusive.[2,3]

## Issues and Trends

On average, physically active people outlive those who are inactive.[4, 5, 6, 7, 8] Regular physical activity also helps to maintain the functional independence of older adults and enhances the quality of life for people of all ages.[9, 10, 11]

The role of physical activity in preventing coronary heart disease (CHD) is of particular importance, given that CHD is the leading cause of death and disability in the United States. Physically inactive people are almost twice as likely to develop CHD as persons who engage in regular physical activity. The risk posed by physical inactivity is almost as high as several well-known CHD risk factors, such as cigarette smoking, high blood pressure, and high blood cholesterol. Physical inactivity, though, is more prevalent than any one of these other risk factors. People with other risk factors for CHD, such as obesity and high blood pressure, may particularly benefit from physical activity.

Regular physical activity is especially important for people who have joint or bone problems and has been shown to improve muscle function, cardiovascular function, and physical performance.[12] However, people with arthritis (20 percent of the adult population) are less active than those without arthritis.[13] People with osteoporosis, a chronic condition affecting more than 25 million people in the United States, may respond positively to regular physical activity, particularly weight-bearing activities, such as walking,[14] and especially when combined with appropriate drug therapy and calcium intake. Increased bone mineral density has been positively associated with aerobic fitness, body composition, and muscular strength.[15]

Although vigorous physical activity is recommended for improved cardiorespiratory fitness, increasing evidence suggests that moderate physical activity also can have significant health benefits, including a decreased risk of CHD. For people who are inactive, even small increases in physical activity are associated with measurable health benefits. In addition, moderate physical activity is more readily adopted and maintained than vigorous physical activity.[16] As research continues to illustrate the links between physical activity and selected health outcomes, people will be able to choose physical activity patterns optimally suited to individual preferences, health risks, and physiologic benefits.

For individuals who do not engage in any physical activity during their leisure time, taking the first step toward developing a pattern of regular physical activity is important. Unfortunately, few individuals engage in regular physical activity despite its documented benefits. Only about 23 percent of adults in the United States report regular, vigorous physical activity that involves large muscle groups in dynamic movement for 20 minutes or longer 3 or more days per week. Only 15 percent of adults report physical activity for 5 or more days per week for 30 minutes or longer, and another 40 percent do not participate in any regular physical activity.

Public education efforts need to address the specific barriers that inhibit the adoption and maintenance of physical activity by different population groups. Older adults, for example, need information about safe walking routes. Persons with foot problems need to learn about proper foot care and footwear in order to reach appropriate activity levels. People with CHD and other chronic conditions must understand the importance of regular physical activity to maintain physical function. Each person should recognize that starting out slowly with an activity that is enjoyable and gradually increasing the frequency and duration of the activity are central to the adoption and maintenance of physical activity behavior. Along with the public education efforts, public programs in a variety of settings (recreation centers, worksites, health care settings, and schools) need to be developed, evaluated, and shared as potential models. The availability of group activities in the community is important for many.

## Disparities

Disparities in levels of physical activity exist among population groups. The proportion of the population reporting no leisure-time physical activity is higher among women than men, higher among African Americans and Hispanics than whites, higher among older adults than younger adults, and higher among the less affluent than the more affluent. Participation in all types of physical activity declines strikingly as age or grade in school increases. In general, persons with lower levels of education and income are least active in their leisure time. Adults in North Central and Western States tend to be more active than those in the Northeastern and Southern States. People with disabilities and certain health conditions are less likely to engage in moderate or vigorous physical activity than are people without disabilities. Health promotion efforts need to identify barriers to physical activity faced by particular population groups and develop interventions that address these barriers.[1]

Data demonstrate that major decreases in vigorous physical activity occur during grades 9 through 12. This decrease is more profound for girls than for boys, whether the measure is engaging in vigorous physical activity in

general or in team sports. The President's Council on Physical Fitness and Sports concluded that because of the physical health and emotional benefits of physical activity, it should have an increasingly important role in the lives of girls.[17] Adolescents' interest and participation in physical activity differ by gender.[17] Therefore, strategies to increase the amount of physical activity for boys and girls must address these differences and must begin before the disparities in levels of physical activity manifest themselves. Compared to boys, girls are less likely to participate in team sports but more likely to participate in aerobics or dance. Often girls and boys perceive different benefits from physical activity, with boys viewing such activity as competition and girls as weight management. These factors must be considered in developing programs to address the needs of girls. Because boys are more likely than girls to have higher self-esteem and greater physical strength, programs addressing the needs of girls should provide instruction and experiences that increase their confidence and their opportunities to participate in activities, as well as social environments that support involvement in a range of physical activities.[17]

## Opportunities

The Healthy People 2010 objectives offer opportunities to ensure that physical activity and fitness become part of regular healthy behavioral patterns. Encouraging any type or amount of physical activity in leisure time can provide important health benefits, compared to a sedentary lifestyle.

Activities that promote strength and flexibility are important because they may protect against disability, enhance functional independence, and encourage regular physical activity participation. These benefits are particularly important for older people-a good quality of life means being functionally independent and being able to perform the activities of daily living.

Young people are at particular risk for becoming sedentary as they grow older. Therefore, encouraging moderate and vigorous physical activity among youth is important. Because children spend most of their time in school, the type and amount of physical activity encouraged in schools are important components of a fitness program and a healthy lifestyle.

The major barriers most people face when trying to increase physical activity are time, access to convenient facilities, and safe environments in which to be active. Counseling by primary care providers about the need to participate in physical activity also is an important way to change behavior. In addition, facilities need to be accessible to people with disabilities.

## Interim Progress Toward Year 2000 Objectives

Of the 13 physical activity and fitness objectives, 1 has been met-increasing worksite fitness programs. Four objectives show solid gains, indicating that the message about increased physical activity is reaching some segments of the population. The message that a sedentary lifestyle plays a role in both overweight and weight loss needs to be addressed better, as does the role primary care providers can play in counseling individuals to increase their daily activities. Both the quantity and quality of school physical education have slipped. Data to evaluate access and availability of community fitness facilities are not available. (Note: Unless otherwise noted, data are from the Centers for Disease Control and Prevention, National Center for Health Statistics, *Healthy People 2000 Review, 1998-99.*)

## Healthy People 2010 — Summary of Objectives

**Goal: Improve health, fitness, and quality of life through daily physical activity.**

| Number | Objective Short Title |
|---|---|
| **Physical Activity in Adults** | |
| 22-1 | No leisure-time physical activity |
| 22-2 | Moderate physical activity |
| 22-3 | Vigorous physical activity |
| **Muscular Strength/Endurance and Flexibility** | |
| 22-4 | Muscular strength and endurance |
| 22-5 | Flexibility |
| **Physical Activity in Children and Adolescents** | |
| 22-6 | Moderate physical activity in adolescents |
| 22-7 | Vigorous physical activity in adolescents |
| 22-8 | Physical education requirement in schools |
| 22-9 | Daily physical education in schools |
| 22-10 | Physical activity in physical education class |
| 22-11 | Television viewing |
| **Access** | |
| 22-12 | School physical activity facilities |
| 22-13 | Worksite physical activity and fitness |
| 22-14 | Community walking |
| 22-15 | Community bicycling |

**Physical Activity in Adults**

22-1. Reduce the proportion of adults who engage in no leisure-time physical activity.

**Target:** 20 percent.

**Baseline:** 40 percent of adults aged 18 years and older engaged in no leisure-time physical activity in 1997 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

**Data source:** National Health Interview Survey (NHIS), CDC, NCHS.

22-2. Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.

**Target:** 30 percent.

**Baseline:** 15 percent of adults aged 18 years and older engaged in moderate physical activity for at least 30 minutes 5 or more days per week in 1997 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

**Data source:** National Health Interview Survey (NHIS), CDC, NCHS.

22-3. Increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion.

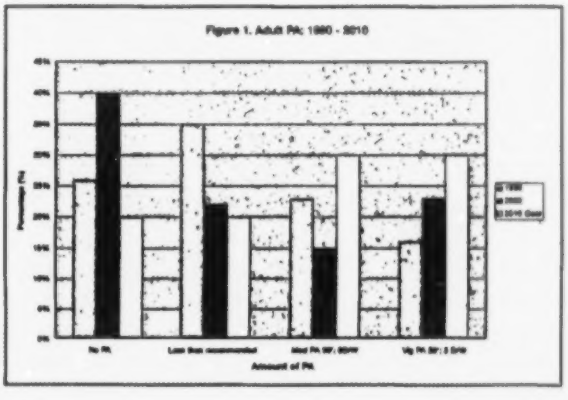
**Target:** 30 percent.

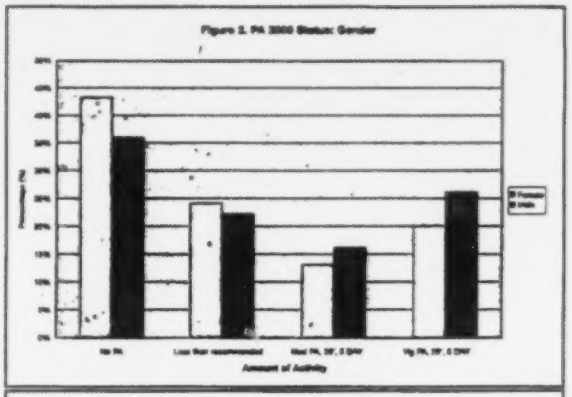
**Baseline:** 23 percent of adults aged 18 years and older engaged in vigorous physical activity 3 or more days per week for 20 or more minutes per occasion in 1997 (age adjusted to the year 2000 standard population).

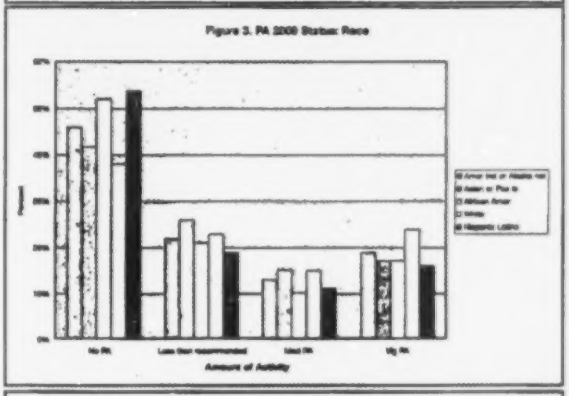
**Target setting method:** Better than the best.

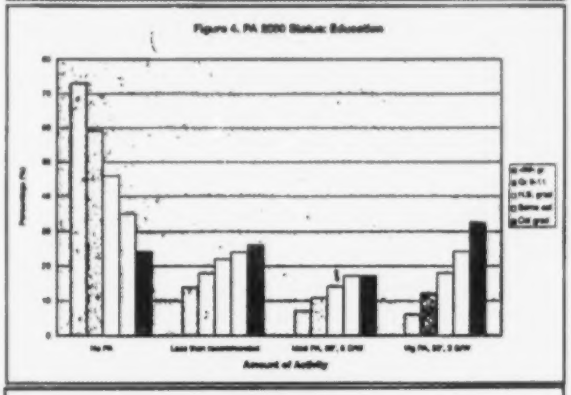
**Data source:** National Health Interview Survey (NHIS), CDC, NCHS.

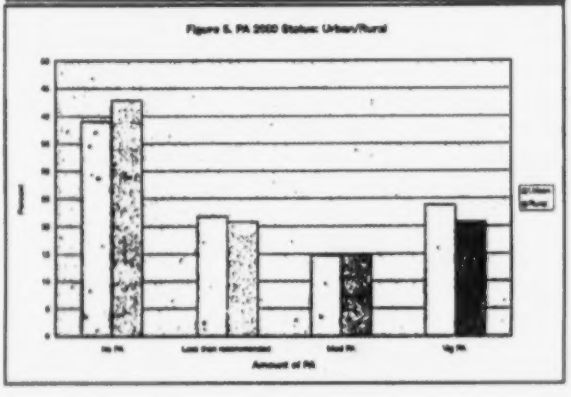
FIGURES 1-7 SUMMARIZE THE 1990 AND 2000 STATUS, AND THE 2010 GOALS FOR RECOMMENDED PHYSICAL ACTIVITY FOR ADULTS, RELATED TO GENDER, RACE AND ETHNICITY, EDUCATIONAL LEVEL, URBAN/RURAL, AGE, AND INDIVIDUALS WITH DISABILITIES.











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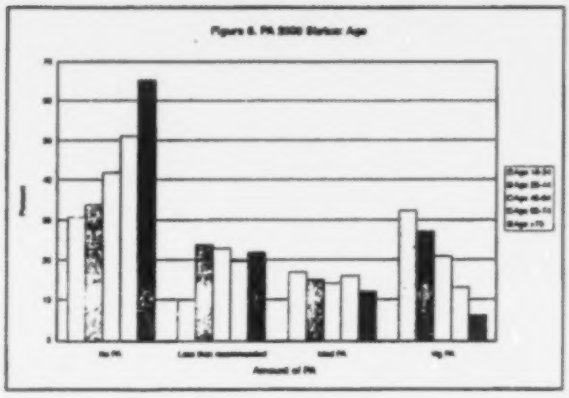
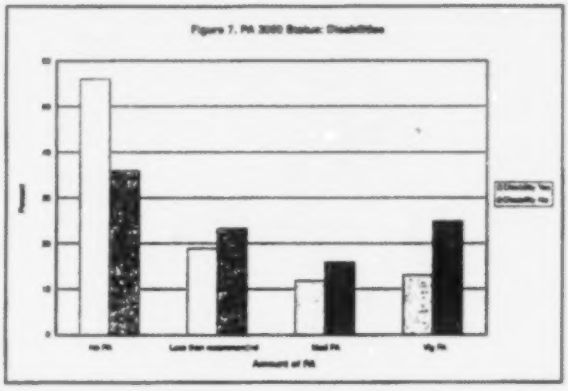




The adoption and maintenance of regular physical activity represent an important component of any health regime and provide multiple opportunities to improve and maintain health. Because the highest risk of death and disability is found among those who do no regular physical activity, engaging in any amount of physical activity is preferable to none. Physical activity should be encouraged as part of a daily routine. While moderate physical activity for at least 30 minutes a day is preferable, intermittent physical activity also increases caloric expenditure and may be important for those who cannot fit 30 minutes of sustained activity into their daily schedules. For even greater health benefits, vigorous physical activity is necessary. For most persons, the greatest opportunity for physical activity is associated with leisure time, because few occupations today provide sufficient vigorous or moderate physical activity to produce health benefits.

Engaging in moderate physical activity for at least 30 minutes per day will help ensure that sufficient calories are used to provide health benefits. A minimum level of intensity (for example, a brisk walk for 30 minutes per day) would, for most persons, result in an energy expenditure of about 600 to 1,100 calories per week.[18] If calorie intake remains constant, this expenditure translates into a weight loss of roughly one-sixth to one-third pound per week. Increases in daily activity to ensure a weekly expenditure of 1,000 calories would have significant individual and public health benefit for CHD prevention and deaths from all causes, especially for persons who are sedentary. Furthermore, this level of activity is feasible for most people even though the relative intensity of any activity will vary by age. Starting out slowly and gradually increasing the frequency and duration of physical activity is the key to successful behavior change. In the case of walking, the message becomes, "If you are not used to daily walking, then walk slowly and take short, frequent walks, gradually increasing distance and speed."

## Muscular Strength/Endurance and Flexibility

22-4. Increase the proportion of adults who perform physical activities that enhance and maintain muscular strength and endurance.

**Target:** 30 percent.

**Baseline:** 18 percent of adults aged 18 years and older performed physical activities that enhance and maintain strength and endurance 2 or more days per week in 1998 (age adjusted to the year 2000 standard population).

**Target setting method:** Better than the best.

**Data source:** National Health Interview Survey (NHIS), CDC, NCHS.

22-5. Increase the proportion of adults who perform physical activities that enhance and maintain flexibility.

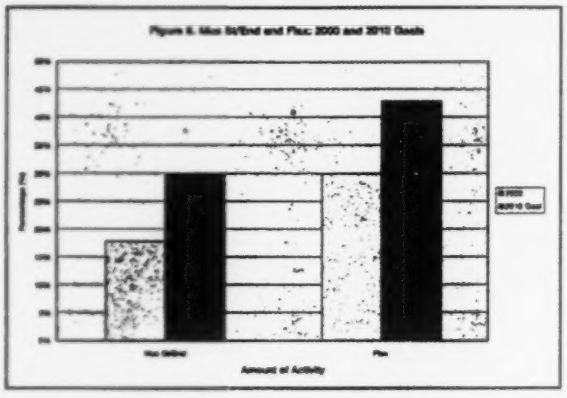
**Target:** 43 percent.

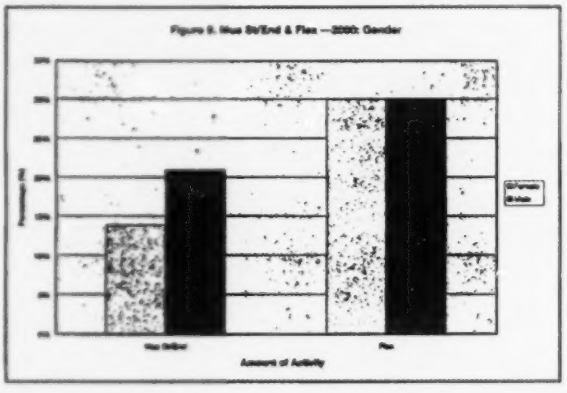
**Baseline:** 30 percent of adults aged 18 years and older did stretching exercises in the past 2 weeks in 1998 (age adjusted to the year 2000 standard population).

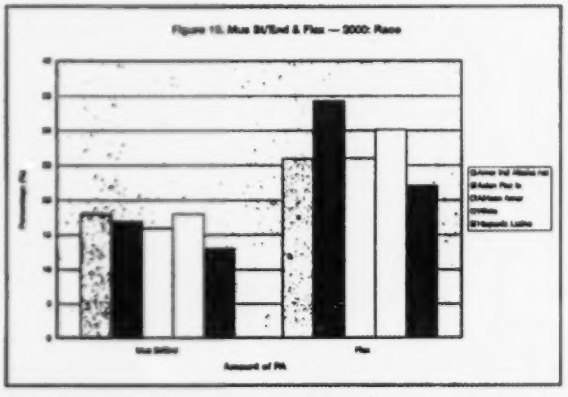
**Target setting method:** Better than the best.

**Data source:** National Health Interview Survey (NHIS), CDC, NCHS.

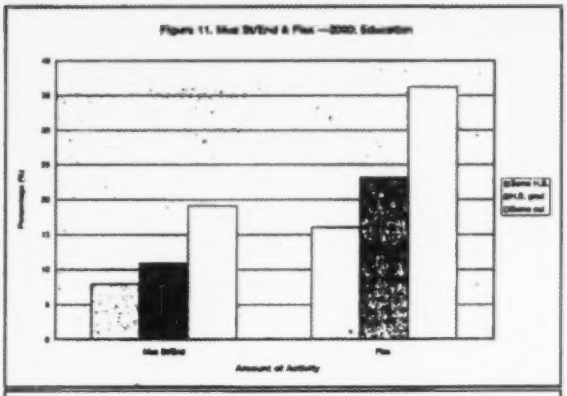
FIGURES 8-14 SUMMARIZE THE 1990 AND 2000 STATUS AND THE 2010 GOALS FOR MUSCULAR STRENGTH/ENDURANCE AND FLEXIBILITY ACTIVITIES FOR ADULTS RELATED TO GENDER, RACE AND ETHNICITY, EDUCATIONAL LEVEL, URBAN/RURAL, AGE, AND INDIVIDUALS WITH DISABILITIES.

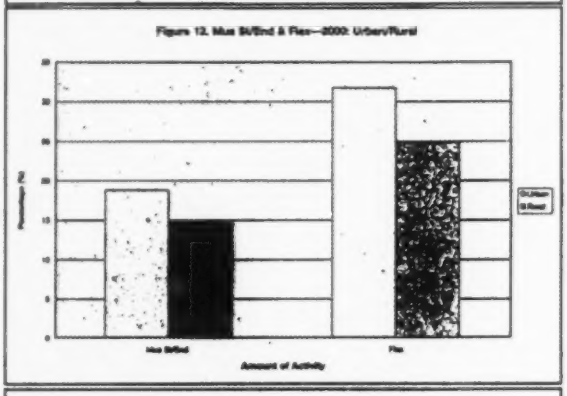


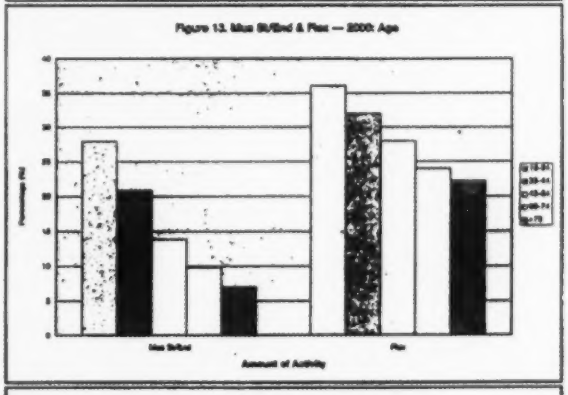


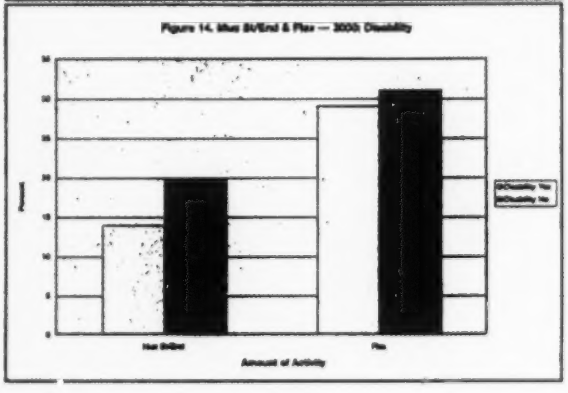


All adults could benefit from physical activities designed to ensure functional independence throughout life. The specific physical fitness components that provide continued physical function as persons age include









muscular strength/endurance and flexibility. Examples of these activities include weight training, resistance activities (using elastic bands or dumbbells), and stretching exercises (such as static stretching, yoga, or T'ai Chi Chuan).

Effective treatment of many chronic diseases and disorders has resulted in more years of life, but many of these extra years are spent with disabling conditions that prevent independent living and reduce the quality of life. Strengthening activities, while important for all age groups, are particularly important for older adults. Muscle strength declines with age, and there is a demonstrated relationship between muscle strength and physical function.[19] Age-related loss of strength may be lessened by strengthening exercises, enabling an individual to maintain a threshold level of strength necessary to perform basic weight-bearing activities, such as walking.[20, 21] Strength training also has been shown to preserve bone density in postmenopausal women.[9]

Physical activities that improve muscular strength/endurance and flexibility also improve the ability to perform tasks of daily living and may improve balance, thus preventing falls.1 Activities of daily living have been identified as a scale to measure dependencies in basic self-care and other functions important for independent living and to avoid institutionalization. The performance of routine daily activities is particularly important to maintaining functional independence and social integration in older adults.[11]

Although flexibility may appear to be a minor component of physical fitness, the consequence of rigid joints affects all aspects of life, including walking, stooping, sitting, avoiding falls, and driving a vehicle. Lack of joint flexibility may adversely affect quality of life and will lead to eventual disability.[22] Activities such as static stretching or T'ai Chi Chuan routines, which consist of slow, graceful movements with low impact, have great promise for maintaining flexibility and can be appropriate for adults of any age.[23] Increasing public awareness of all these potential benefits of muscle strengthening and flexibility activities-and developing and making quality programs available and accessible-may encourage the pursuit of activities that promote muscular strength/endurance and flexibility.

## Physical Activity in Children and Adolescents

22-6. Increase the proportion of adolescents who engage in moderate physical activity for at least 30 minutes on 5 or more of the previous 7 days.

**Target:** 35 percent.

**Baseline:** 27 percent of students in grades 9 through 12 engaged in moderate physical activity for at least 30 minutes on 5 or more of the previous 7 days in 1999.

**Target setting method:** Better than the best.

**Data source:** Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP.

22-7. Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion.

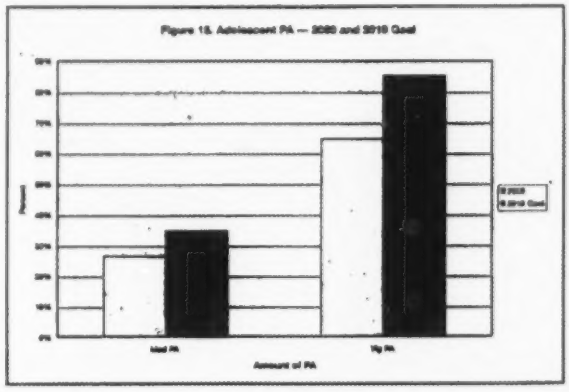
**Target:** 85 percent.

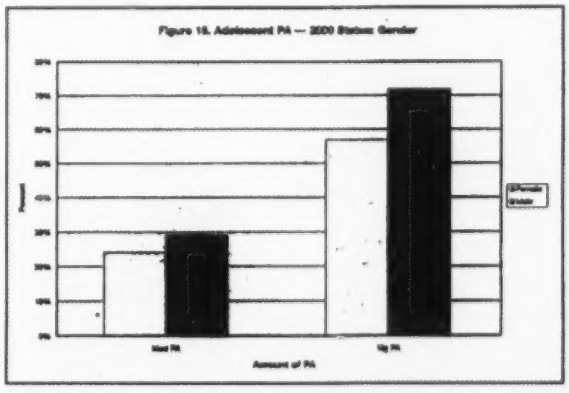
**Baseline:** 65 percent of students in grades 9 through 12 engaged in vigorous physical activity 3 or more days per week for 20 or more minutes per occasion in 1999.

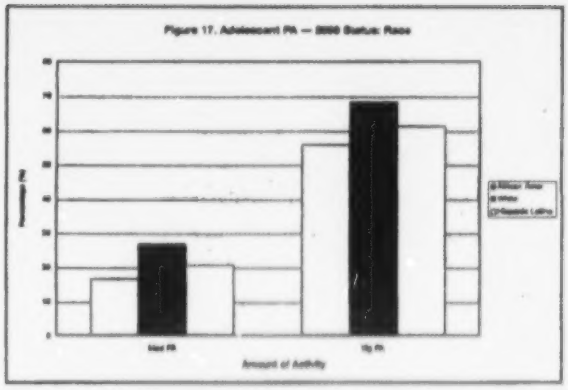
**Target setting method:** Better than the best.

**Data source:** Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP.

FIGURES 15-17 SUMMARIZE THE 1990 AND 2000 STATUS AND THE 2010 GOALS FOR PHYSICAL ACTIVITY FOR ADOLESCENTS, RELATED TO GENDER AND RACE.







22-8. Increase the proportion of the Nation's public and private schools that require daily physical education for all students.

**Target and baseline:**

| Objective | Increase in Schools Requiring Daily Physical Activity for All Students | 1994 Baseline | 2010 Target |
|---|---|---|---|
| | | Percent | |
| 22-8a. | Middle and junior high schools | 17 | 25 |
| 22-8b. | Senior high schools | 2 | 5 |

**Target setting method:** 47 percent improvement for middle and junior high schools; 150 percent improvement for senior high schools.

**Data source:** School Health Policies and Programs Study (SHPPS), CDC, NCCDPHP.

22-9. Increase the proportion of adolescents who participate in daily school physical education.

**Target:** 50 percent.

**Baseline:** 29 percent of students in grades 9 through 12 participated in daily school physical education in 1999.

**Target setting method:** Better than the best.

**Data source:** Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP.

22-10. Increase the proportion of adolescents who spend at least 50 percent of school physical education class time being physically active.

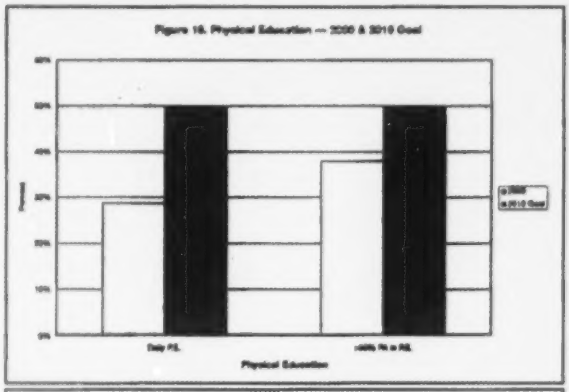
**Target:** 50 percent.

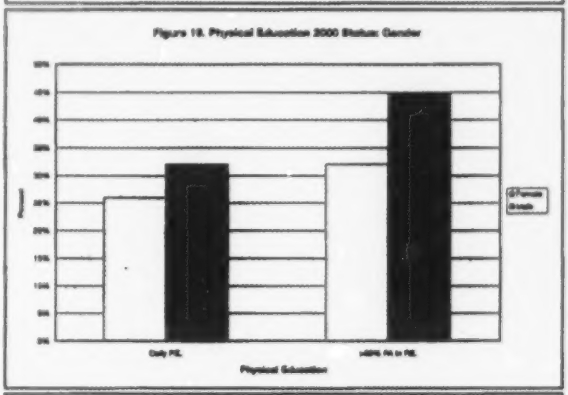
**Baseline:** 38 percent of students in grades 9 through 12 were physically active in physical education class more than 20 minutes 3 to 5 days per week in 1999.

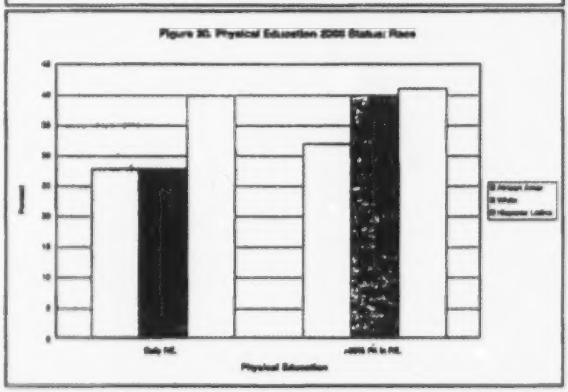
**Target setting method:** Better than the best.

**Data source:** Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP.

FIGURES 18-20 SUMMARIZE THE 1990 AND 2000 STATUS AND THE 2010 GOALS FOR PHYSICAL EDUCATION RELATED TO GENDER AND RACE.







22-11. Increase the proportion of adolescents who view television 2 or fewer hours on a school day.

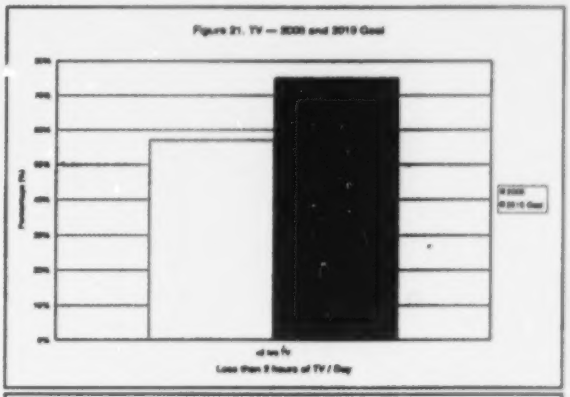
**Target:** 75 percent.

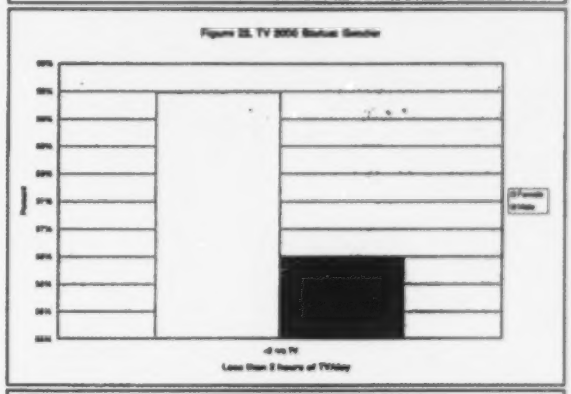
**Baseline:** 57 percent of students in grades 9 through 12 viewed television 2 or fewer hours per school day in 1999.

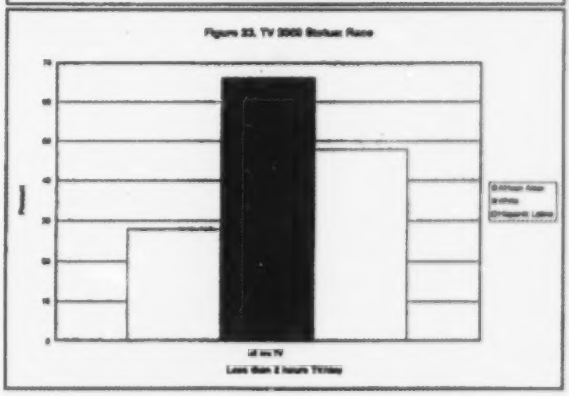
**Target setting method:** Better than the best.

**Data source:** Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP.

FIGURES 21-23 SUMMARIZE THE 2000 STATUS AND 2010 GOALS FOR WATCHING LESS TV, RELATED TO GENDER AND RACE.







The health benefits of moderate and vigorous physical activity are not limited to adults. Physical activity among children and adolescents is important because of the related health benefits (cardiorespiratory function, blood pressure control, and weight management) and because a physically active lifestyle adopted early in life may continue into adulthood. Even among children aged 3 to 4 years, those who were less active tended to remain less active after age 3 years than most of their peers.[24] These findings highlight the need for parents, educators, and health care providers to become positive role models and to be involved actively in the promotion of physical activity and fitness in children and adolescents.

Many children are less physically active than recommended, and physical activity declines during adolescence.[25, 26] One study found that one-quarter of U.S. children spend 4 hours or more watching television daily.[27] Schools are an efficient vehicle for providing physical activity and fitness instruction because they reach most children and adolescents. Participation in school physical education ensures a minimum amount of physical activity and provides a forum to teach physical activity strategies and activities that can be continued into adulthood. Findings suggest that the quantity and, in particular, the quality of school physical education programs have a significant positive effect on the health-related fitness of children and adolescents by increasing their participation in moderate to vigorous activities.[28, 29]

Studies have shown that spending 50 percent of physical education class time on physical activity is an ambitious but feasible target. Being active for at least half of physical education class time on at least half of the school days would provide a substantial portion of the physical activity time recommended for adolescents.[30] To achieve the benefits of school-based physical education equitably for all children, daily adaptive physical education programs should be available for children with special needs. School physical education requirements also are recommended for students in preschool and postsecondary programs.[31]

Physical education is the primary source of physical activity and fitness instruction. Health education and other courses, however, can highlight the importance of physical activity as a component of a healthy lifestyle. A well-designed health education curriculum can help students develop the knowledge, attitudes, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles.[31] To maximize classroom time, instruction on physical activity also can be integrated into the lesson plans of other school subjects, such as mathematics, biology, and language arts. Programs that have included classroom instruction in physical activity have been effective in enhancing students' physical activity-related knowledge,[32] attitudes,[33]

behavior,[34] and physical fitness.[35] (See Focus Area 7. Educational and Community-Based Programs.)

## Access

22-12. (Developmental) Increase the proportion of the Nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (that is, before and after the school day, on weekends, and during summer and other vacations).

**Potential data source:** School Health Policies and Programs Study (SHPPS), CDC, NCCDPHP.

22-13. Increase the proportion of worksites offering employer-sponsored physical activity and fitness programs.

**Target:** 75 percent.

**Baseline:** 46 percent of worksites with 50 or more employees offered physical activity and/or fitness programs at the worksite or through their health plans in 1998-1999.

| Worksite Size (# of employees) | Worksite or Health Plan | Health Plan | Worksite |
|---|---|---|---|
| | | Percent | |
| Total 50 or more | 46 | 22 | 36 |
| 50 to 99 | 38 | 21 | 24 |
| 100 to 249 | 42 | 20 | 31 |
| 250 to 749 | 56 | 25 | 44 |
| 750 or more | 68 | 27 | 61 |
| Less than 50 | | Developmental | |

**Target setting method:** Better than the best.

**Data source:** National Worksite Health Promotion Survey, Association for Worksite Health Promotion (AWHP).

Participation in regular physical activity depends, in part, on the availability and proximity of community facilities and on environments conducive to physical activity. Studies of adult participation in physical activity have found that use generally decreases as facility distance from a person's residence increases.[36] People are unlikely to use community resources located more than a few miles away by car or more than a few minutes away by biking or walking.

One of the major barriers to youth participation in sports is lack of enough sports facilities.[37] Increased access to community physical activity facilities would, therefore, help increase youth physical activity. The availability of school facilities for physical activity programs also may be beneficial for crime and violence prevention and other social programs,[37] because most juvenile crime is committed between 3 and 8 p.m.

Schools need to work with community coalitions and community-based physical activity programs to take maximum advantage of school facilities for the benefit of children and adolescents and the community as a whole. The needs of all community members, including senior citizens and people with disabilities, need to be considered.

Worksite physical activity and fitness programs provide a mechanism for reaching large numbers of adults and have at least short-term effectiveness in increasing the physical activity and fitness of program participants.[38] Such programs should be provided in a culturally and linguistically competent manner. Evidence that worksite programs are cost-effective is growing. Such programs may even reduce employer costs for insurance premiums, disability benefits, and medical expenses.[39] Additional benefits for employers include increased productivity, reduced absenteeism, reduced employee turnover, improved morale, enhanced company image, and enhanced recruitment. Including family members and retirees in worksite programs can further increase benefits to employers and the community.[39]

As purchasers of group health and life insurance plans, employers can design employee benefit packages that include coverage for fitness club membership fees and community-based fitness classes. Employers also can offer reduced insurance premiums and rebates for employees who participate regularly in worksite fitness programs or who can document participation in regular physical activity.

22-14. Increase the proportion of trips made by walking.

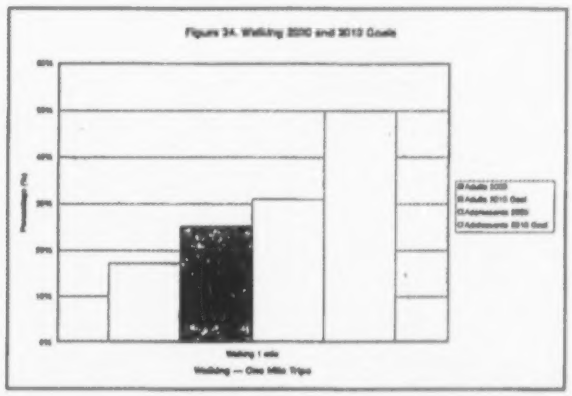
**Target and baseline:**

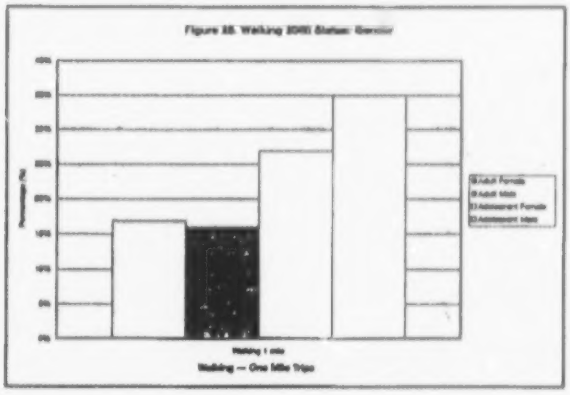
| Objective | Increase in Trips Made by Walking | Length of Trip | 1995 Baseline* | 2010 Target |
|---|---|---|---|---|
| | | | Percent | |
| 22-14a. | Adults aged 18 years and older | Trips of 1 mile or less | 17 | 25 |
| 22-14b. | Children and adolescents aged 5 to15 years | Trips to school of 1 mile or less | 31 | 50 |

**Target setting method:** 47 percent improvement for 22-14a and 68 percent improvement for 22-14b. (Better than the best will be used when data are available.)

**Data source:** Nationwide Personal Transportation Survey (NPTS), DOT.

FIGURES 24 AND 25 SUMMARIZE THE 1990 AND 2000 STATUS AND THE 2010 GOALS FOR WALKING FOR ADULTS AND ADOLESCENTS RELATED TO GENDER.





Walking is a very popular form of physical activity in the United States; however, people need the opportunity to walk safely. Over 75 percent of all trips less than 1 mile were made by automobile in 1995.[40] In addition, the number of walking trips as a percentage of all trips taken (of any distance) has declined over the years. Walking trips made by adults dropped from 9.3 percent in 1977 to 7.2 percent in 1990 and again to 5.4 percent in 1995. Walking has declined even more sharply for children.[40] These declines have negative implications for the health of adults and children.

22-15. Increase the proportion of trips made by bicycling.

**Target and baseline:**

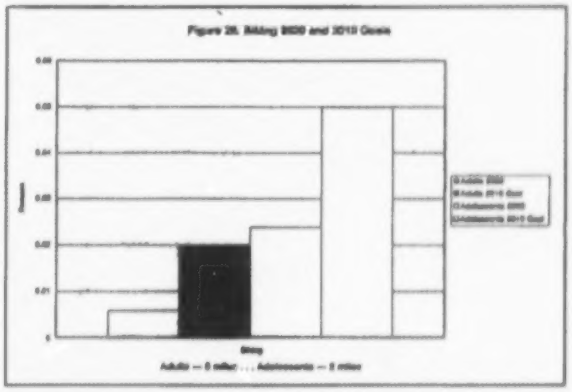
| Objective | Increase in Trips Made by Bicycling | Activity | 1995 Baseline* | 2010 Target |
|---|---|---|---|---|
| | | | Percent | |
| 22-15a. | Adults aged 18 years and older | Trips of 5 miles or less | 0.6 | 2.0 |
| 22-15b. | Children and adolescents aged 5 to15 years | Trips to school of 2 miles or less | 2.4 | 5.00 |

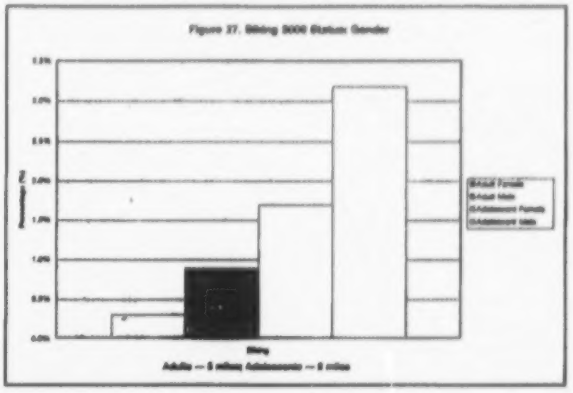
*Age adjusted to the year 2000 standard population.

**Target setting method:** 233 percent improvement for 22-15a and 108 percent improvement for 22-15b. (Better than the best will be used when data are available.)

**Data source:** Nationwide Personal Transportation Survey (NPTS), DOT.

FIGURES 26-27 SUMMARIZE THE 1990 AND 2000 STATUS AND THE 2010 GOALS FOR BICYCLING RELATED TO GENDER.







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Bicycling is another form of transportation that may be used by both children and adults for distances that may not be feasible, practical, or efficient to cover by walking. If the environment does not provide safe opportunities for physical activities such as walking and bicycling, adults and children likely will spend more time engaging in sedentary activities indoors. (See Focus Area 8. Environmental Health.) Sedentary activities such as watching television, playing video games, and using personal computers have contributed to increases in the cases of overweight individuals.[27]

## Summary

The Department of Health and Human Services, working with other governmental agencies, professional groups, and individuals, have identified general areas of concern for the nation's health. Specific health needs have been described for each of the focus areas, with trends over the past several years presented and targets determined for the next decade. Physical activity and fitness has been an important priority area that now recommends a variety of types and intensities of physical activity for all individuals.

## Terminology

**Aerobic**: Conditions or processes that occur in the presence of, or requiring, oxygen.[41]

**Energy expenditure:** The energy cost to the body of physical activity, usually measured in kilocalories.[41]

**Functional independence:** The ability to perform successfully and safely activities related to a daily routine with sufficient energy, strength/endurance, flexibility, and coordination.

**Physical activity:** Bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure.[1]

**Moderate physical activity:** Activities that use large muscle groups and are at least equivalent to brisk walking. In addition to walking, activities may include swimming, cycling, dancing, gardening and yardwork, and various domestic and occupational activities.

**Vigorous physical activity:** Rhythmic, repetitive physical activities that use large muscle groups at 70 percent or more of maximum heart rate for age. An exercise heart rate of 70 percent of maximum heart rate for age is about 60 percent of maximal cardiorespiratory capacity and is sufficient for cardiorespiratory conditioning. Maximum heart rate equals roughly 220 beats per minute minus age. Examples of vigorous physical activities include jogging/running, lap swimming, cycling, aerobic dancing, skating, rowing, jumping rope, cross-country skiing, hiking/backpacking, racquet sports, and competitive group sports (for example, soccer and basketball).

**Physical fitness:** A set of attributes that persons have or achieve that relates to the ability to perform physical activity.[1] Performance-related components of fitness include agility, balance, coordination, power, and speed.[42] Health-related components of physical fitness include body composition, cardiorespiratory function, flexibility, and muscular strength/endurance.[41]

**Agility:** Ability to start, stop, and move the body quickly and in different directions.

**Balance:** Ability to maintain a certain posture or to move without falling.

**Body composition:** The relative amount of body weight that is fat and nonfat.

**Cardiorespiratory function:** A health-related component of physical fitness that relates to the ability of the circulatory and respiratory systems to supply oxygen during physical activity.

**Coordination:** Ability to do a task integrating movements of the body and different parts of the body.

**Exercise (exercise training):** Planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness.

**Flexibility:** Ability to move a joint through the full range of motion without discomfort or pain.

**Muscular endurance:** Ability of the muscle to perform repetitive contractions over a prolonged period of time.

**Muscular strength:** Ability of the muscle to generate the maximum amount of force.

**Power:** Ability to exert muscular strength quickly.

**Speed:** Ability to move the whole body quickly.

**Sedentary:** Denotes a person who is relatively inactive and has a lifestyle characterized by a lot of sitting.[41]

# Physical Activity and Fitness Quote

**Healthy People 2010**
**is a goal-oriented**
**roadmap to society's health.**
**An essential ingredient for the**
**highest quality of life for everyone**
**is to have an active lifestyle!**

Christine G. Spain, PCPFS
Director of Research, Planning, and Special Projects

B. Don Franks, PCPFS
Senior Program Advisor, Professor, Department of Kinesiology, University of Maryland

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